



Bexar Wire

San Antonio Radio Club
W5SC



2023, No. 01 January 2024

Field Day 2023 Revisited Harold Fleischer AE5AS



The Amateur Radio Relay League's (ARRL's) December 2023 issue of *QST* magazine had the official results and report on Field Day 2023. For complete

results, the reader should see the information in that issue.

The San Antonio Radio Club (SARC) participated as a 4A entry in Field Day 2023. The 4 in 4A means up to 4 active High Frequency (HF) transmitters in operation at any time. The A means non-commercial or emergency power sources were being used. In SARC's case, this was portable electrical generators although some Hams also used batteries.

There were 168 entries in category 4A. SARC had 2,148 points. The top entry in 4A had 21,066. SARC, being an eating club with a radio problem, had a number of priorities for Field Day 2023. Safety was a big priority. Eating well was another big priority. Helping each other, new Hams, and visitors get on the air is yet another big

priority. Actually, participating in the contest aspect is SARC's last priority.

The competition part does get attention. The Chairperson made sure we had laptops to capture the data on SARC's contacts and had them networked together to consolidate the data. Another key member was poised to take the data and submit it to ARRL, which, obviously, happened. During Field Day 2023, members used this setup to get the data as a part of their normal operations, but it was not a priority to make a certain number of contacts. It was a priority to record the contacts as a part of having fun.

Overall, SARC was about in the center of the 4A category. SARC was just a little below the median point. SARC was roughly in the same position last year although SARC had fewer points last year.

Probably, the most important aspect of ARRL's report on Field Day 2023 is that SARC was reported as having participated in category 4A. The score part, ARRL knows about and now everyone else knows about it as well. What ARRL and everyone else does not know is how much fun SARC had and how much SARC members learned at Field Day 2023.

Field Day 2024 will be Saturday-Sunday, June 22-23, 2024. It should be another fun, learning event.

The next meeting, January 11, 2024, will be at 7 PM at Blanco BBQ, 13259 Blanco Rd, San Antonio, TX 78216, (210) 251-2602. Program: RF Exposure, presented by Harold Fleischer, AE5AS

Editor's Notes: If you haven't already, don't forget to renew your membership! Check the SARC web page for the 2024 calendar
Check AARO for Winter Field Day info.

SAN ANTONIO RADIO CLUB

PRESIDENT'S RADIOGRAM

NUMBER	PRECEDENCE	HX	STATION OF ORIGIN	CHECK	PLACE OF ORIGIN	TIME FILED	DATE
01	R		N5IUT		San Antonio, TX		January 2024
TO							

Hello South Texas,

I have been working on a calendar for Amateur Radio activities in our area and larger events throughout Texas.

This month you can go to AARO, SARC, ROOST and SARC meetings, drive to the Cowtown Hamfest in the DFW area or can participate in Winter Field Day. There are emergency communication nets and in person meetings for ARES and a meeting at the Red Cross.

This year SARC will be conducting Foxhunts, POTA events and swapping equipment at tailgates.

Please look at the calendar and add some of these activities to your calendar. We would love to see you at the local meetings and events!

Paul Guido, N5IUT
San Antonio Radio Club, President

Bexar Wire

Published monthly by:



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The due date for articles is the **Monday** before the first **Thursday** of the month

San Antonio Radio Club

Meeting Minutes

7:00 p. m., November 9, 2023

Blanco BBQ, 13259 Blanco Rd., San Antonio, TX 78216

Meeting called to order at 7:04 PM//Pledge of Allegiance//Introductions

Drawing for Robert Rodriguez Scholarship prizes:

- 1st: Yaesu FTDX10 Radio: William Best, N5YER
- 2nd: Yaesu FT991A Radio: Brian Clark, WB5DRI
- 3rd: Yaesu FT710 Radio: Diane Crane, KI5IMP
- 4th: Yaesu FT5DR: JC Smith, N5RXS
- 5th: Yaesu FT5DR: James Vale, N5ZKQ

Approval of Minutes of the Last Meeting

There being no additions, corrections, or deletions, minutes were approved with change without objection by unanimous consent.

Officer Reports:

President – Paul Guido, N5IUT – 2024 slate of club officers presented for the membership to approve. All were elected by unanimous consent of the members present.

Paul Guido – N5IUT – President
Robert Richter - W5ENG - Vice President
Jack Bannin- N5JLB – Secretary
Jon April – KI5CSK – Treasurer
Harold Fleischer – AE5AS – Chairman of the Board
Bill Craft – KD2HIQ – Director through 2024
Richard Elder – WB5ACN – Director through 2025
Benny Martinez – N5UP – Director through 2026
Rodney Brown – AA5RB – Director through 2027

Vice President – Lloyd Swartz, KF5ZHW – Presentation: Life as a Radio Interference Engineer.

Secretary – Jack Bannin, N5JLB – The minutes from club meetings can be found at the w5sc.org website, in the Newsletters section.

Treasurer – Jon April, KI5CSK – Scholarship raffle has concluded successfully. The cost of prizes was covered, and additional funds collected above that amount will be earmarked to fund the scholarship in the future.

Chairman of the Board Report – Harold Fleischer, AE5AS – Board of Directors has been inactive the past 30 days. 4 Jan 2024 BOD will meet again to review 2023 actuals and 2024 budget proposal.

Education and Training – David Finell, N7LRY – No report.

Emergency Communications – JC Smith N5RXS – No report.

Membership – Bill Craft, KD2HIQ – As of DATE: 11/5/23

Paid 167	New Members for 2023		
Mil 5	First	Last	Call
Family Members 20	Rex	Field	
Radio Fiesta-Free 9	Dora	Vukmirovic	
Free-VE 10	Grant	Ledet	
ARRL Members 116	Albert	MGehee	
Total membership 211			

Web Site – Bill Craft, KD2HIQ

1. Web Site – Posted newsletter. To improve our email authentication, added SPF, DMARC, and DKIM records to the club’s domain to comply with Google’s requirements. Added December 1995 newsletter (thanks to Don Jones, W5JX). Radio Fiesta 2024 updated.
2. Groups.io – Club’s primary method of mass communication
 - a. Updated membership list
 - b. Updated calendar
3. Mail chimp- Meeting notice, Radio Fiesta news blast.
4. Twitter
5. Facebook - Meeting notice

POTA - Jon April KI5CSK – No report.

Newsletter Editor – Jimmie Neff – Newsletter distributed and posted to website on November 9, 2023. Invited members to contribute information and stories for the newsletter.

Field Day – Jon April: No report

Finance and Review – No report.

JOTA – John Douglas W5NZK – No report.

Centennial Committee – Tom O’Brien AB5XZ – Souvenirs (patches, challenge coins, pins) from the club’s 2019 centennial year are still available.

Radio Fiesta – Aubrey Mason – July 19-20, 2024, and early June 2025 dates set. Friday closing time was extended to 8 PM as a test in response to requests.

VE Team – Benny Martinez, NU5P – No report.

Silent Key Committee – Rodney Brown, AA5RB – No report.

Monthly Activities – Travis Few, N9EOD – Fox Hunt on Sunday, November 12 from 9-noon O.P. Schnabel Park. Also launched a balloon last week successfully, though parachute failed to deploy upon return.

Executive – No report.

Election Committee – Paul Guido, N5IUT – Slate of nominees presented. Harold Fleischer, AE5AS: Motion to close nominations, Jim seconded. Approved by unanimous consent.

Scholarship Committee: Tom O’Brien – No report

Old Business (Motions carried over from previous meetings) – None.

New Business – For the BOD: proposal to become an ARRL Special Service Club (SSC) member.

Announcements: The joint ham radio holiday party will be on 7 Dec 23 at Blanco BBQ beginning at 7 PM. No club meeting in December.

Meeting Adjourned @ 8:27 PM



Volunteer Examiners at Work



No report for December. Check the club web page for latest information.

The first testing session for 2024 will be in February. Watch the web page for more information. Pre-register at HamTest@w5sc.org. If you plan to test, be sure to pre-register.

From Bennie Martinez, NU5P VE Team Lead:

Sail the 7 Cs for a better you in '24:

(Wilson Adams)

1. Clarity. Clarity speaks to purpose. Purpose happens when we see ourselves in a bigger picture -God's picture. In seeking clarity, we learn our value, discover our values, and find our voice. Want clarity? Hmm. There's this Book...

2. Commitment. Take responsibility for your actions and attitude. Growth happens when we stop blaming others and wake up to personal accountability. I may not be able to choose my circumstances, but I can choose my attitude. Own it to fix it.

3. Confidence. Confidence is not over-confidence. Narcissism happens when we cover up lack of confidence and become the bully on the playground. True confidence happens when we anchor in Jesus. "I can do all things -through Him who strengthens me."

4. Communicate. Be strong, not long. "They suppose they are heard for their many words..." Actually, the opposite is true. Fine tune your words. The goal is not to say something, but have something to say. BTW, 50% of communication is... listening.

5. Community. While we long for independence, we are God-wired for interdependence; a sense of belonging. Social media is not community. How many FB "friends" can you



call at 3 AM with an emergency? Jesus had three in His inner circle of community.

6. Courage. Courage is standing for right even if you stand alone. It's facing into the winds of apathy, uncertainty, and intimidation. It's accepting the challenge, taking the risk, and walking into the arena -daring even to fail.

7. Character. Be real. Walk in integrity. Do what you say you're going to do. You can be a character or live with character. Big difference.

Living better comes down to choice. It's a New Year..

(Wilson Adams, a presacher lives in [Murfreesboro, Tennessee](#) and describes himself as "Jesus Follower, Husband, Dad, Author, Adventurer, Adoption Advocate, and Golden Retriever Loyalist")

Emergency Communications (JC Smith N5RXS)

I'm a "has been" and haven't been successful getting SARC to update the web page. I'm still involved in ARES and RACES but gave up leadership because of business commitments.

At this point your only option is ARES. RACES requires a general class or higher license. ARES is Amateur Radio Emergency Service. We are part of South TX Section 12.

David Rice, NB5K, is the ARES Emergency Coordinator (EC) for Bexar County. The ARES District 12 District Emergency Coordinator (DEC) Ruth Lewis, KE5MHJ. David and Ruth are also leaders for RACES.

Face to face meetings are held monthly and on air (2 meter) nets weekly. David can be contacted at da-vid.rice9@icloud.com or (210) 367-8623 and Ruth can be contacted at ke5mhj@144200.net or (210) 548-0758.

Hopefully, this helps. If you have other questions for me, my number is (210) 849-3404.

J C

P.S. If you are not an American Legion member, I can send an application.

Crystals: What's Going On in There

An intimate look inside

BY CHARLES "BUC" FITCH

PUBLISHED: DECEMBER 24, 2023

The poet in me (and our illustrious editor knows I am a poet at heart) cries out that I first tell you that in ancient times, folks believed that quartz crystals were eternal ice sent by the heavenly gods.

In the late 1500s, the cognoscenti dismissed the poets and stated that these stones were actually fossilized ice. Score one for the poets. First with the most imaginative.

In present-day parlance, etymologists believe that *quartz* comes to us from the German, as much of the early work was done in central Europe, and *crystal* from the Greek for ice. Okay, both the poets and the cognoscenti got that part of it right.

Quartz crystal is a mineral, one of the most abundant in the earth's continental crust, composed of silicon and oxygen (SiO₂).

Putting the poetry and the beauty of these gems aside, quartz crystals have a unique quality useful to engineers and especially communications engineers: the piezoelectric effect.

The Curie brothers were an extraordinary pair who through their love and knowledge of math and physics were first to recognize in about 1880 that when pressure was applied to a body, in this case quartz, electricity was generated. The piezo portion of piezoelectric is a western bastardization of *piezein*, from the Greek for "squeeze."

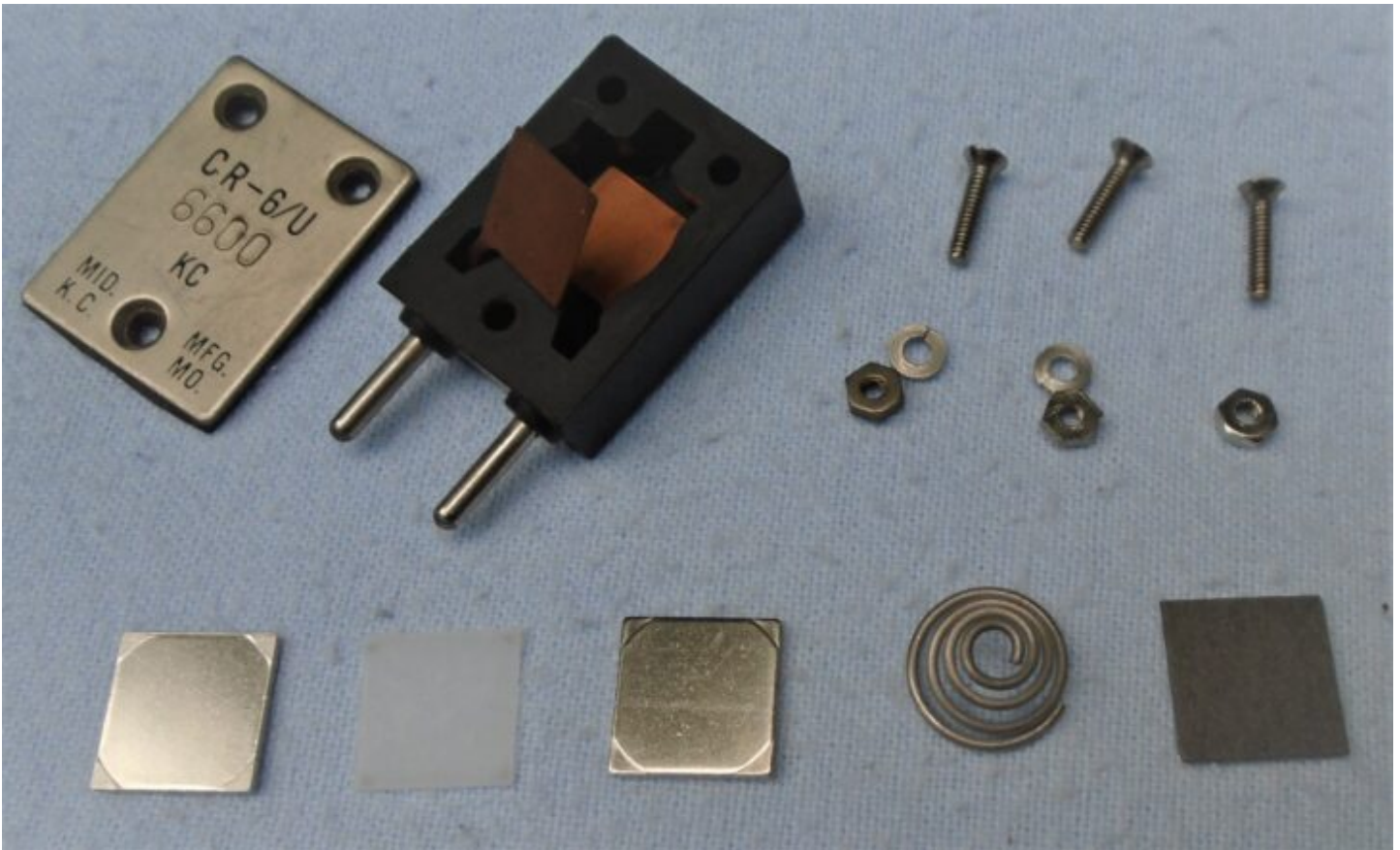


Crystal packaging formats through the years. The FT-243, lower left, was a favorite of the military; it became a ham standard thanks to a mounting scheme that allowed the crystal blank to be removed easily for “etching,” while the pin spacing matched the cost-effective octal tube socket, allowing convenient two-crystal pairing.

Shortly thereafter, a contemporary mathematician, Gabriel Lippman, postulated that there should be a converse piezoelectric effect, whereby applying an electric field to a crystal should cause that material to deform in response. Stimulated by this inverse phenomenon concept, the Curies quickly confirmed that Gabriel was correct.

With the emergence of the electronic era, we had better test and analysis gear to investigate, and in the 1920s, we are able to identify that certain crystal sections have a resonant aspect, electrically mimicking a series LC (inductor–capacitor) combination.

In the 1930s, broadcasting, communications in general and especially the military really got going on crystals. The problem this substance could solve ... getting things exactly on-frequency ... was real and the solution critical if radio was to advance and expand.



A breakdown of the FT-243 holder. The actual crystal is the opaque square at lower left.

In a crystal, this action is a combination physical and electrical event. Reviewing the early, purist form of this technology, to optimize the effect, the first step was to select the coarse material in its natural form (basically a rock, which is where the vernacular slang of “rock” for a crystal comes from).

Next would come the mechanical preparation where the rock would be cut along the appropriate and/or ideal axis, sliced into “blanks,” the surface roughly prepared (tapering the delicate blank edges is a technology in itself), and finally a check of its resonant frequency.

From a lower frequency, the crystal is ground down (gross error) or acid etched (fine error) until the desired frequency of operation is reached.

As this resonant phenomenon is repeatable and stable over time, a properly utilized crystal can be the basis of a frequency standard.

Working within the limitations of the industrial mechanical tools available during the first half of the 1900s, the crystal blanks started out to be physically quite large, placing a

practical limit on the highest frequency that would be stable. The top of the AM dial (1500 kHz in 1930) was well within reach, and in 1926, AT&T's WEAJ in New York City became the first radio station in the United States to control its frequency with a quartz crystal unit.



The crystal that helped win the war. A 1000 kHz crystal standard was used to confirm the accuracy of wartime receiver dials and transmitter operating frequencies such that rendezvous on special channels could be made with confidence.

This pseudo resonant effect finds many uses and solves many problems including bandpass filters, etc., but our industry's greatest use is in oscillators.

An oscillator is basically an amplifier with sufficient feedback to find and settle at its resonant (maximum gain) point, hopefully developing a single frequency output. The crystal is introduced into that feedback path as the controlling element, and with proper attention to current flow, temperature, loading, stray capacitance etc., that crystal will begin to physically vibrate, and when it achieves its natural resonance will be passing the maximum current, bringing the oscillator to the intended frequency ... reliably, stably, continuously.

By their very nature, crystals are brittle and can be damaged by physical impact or destructive impressed current. Early broadcast crystals for that reason were well supported, quite often in glass enclosures that were expensive and hence needed a little showoff presentation.

During the AM domination period when the ± 20 Hz frequency tolerance standard came in, the crystal also had to be maintained in a temperature-controlled, heated environment to enhance its stability even more to keep it inside that ± 20 Hz window.



Time marches on. For a few dollars these DIP IC from sources such as CTS and Cardinal contains a high stability frequency standard, a divider chain, quadrant multipliers, voltage regulator and buffer output (square wave). They can be computer cut from 1 MHz to just about any one specific programmed frequency even beyond 50 MHz.

Technology has moved forward, and modern-day crystals are mass-produced, using all sorts of breeding techniques to avoid the cutting and grinding of yesteryear. Modern devices such as computer-cut oscillators and synthesized frequency generators using

VCOs and divider schemes have given us advanced, accurate and cost-effective design tools never imagined by the earliest of our broadcast technocrats.

Do not be fooled and accept no substitutes, as almost all of these derivative concepts start out with a crystal in the device providing the base frequency.

The loaded 1900s ships arriving from Brazil, where most of the classic quartz crystals came from, are long gone replaced by artificially produced, high performance, very exact, stable at all temperature “rocks.”

However, the crystal and the piezoelectric effect, found in that eternal ice, remains an important building block tool after all these years.

The Brothers Curie



(Photo by Ann Ronan Pictures/Print Collector/Getty Images)

Brothers Jacques and Pierre Curie (pictured) were research colleagues in their nascent days as renaissance-style scientists.

Like the Varian brothers, co-inventors of the klystron, the Curies bounced off one another intellectually. With Pierre leading the way and after considering several other materials, they firmly identified the piezoelectric effect in quartz around 1880 while still in their 20s.

Putting pragmatics before theory, we again come upon one of Buc Fitch’s universal mantras: It’s not what you’ve got but what you do with it that counts. Using their new knowledge, they did do something with it, and shortly invented the piezovoltmeter and a

derivative, the piezoelectrometer, which later became the basic instrument used by Pierre and his wife Marie Curie in their second-act work, which led to the discovery of radium.



SARC has had a Groups.io. Its name is saradioclub.

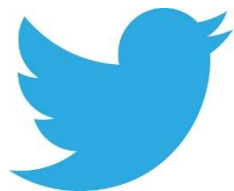
If you haven't signed up for group.io, you should. Groups.io is our primary email messaging method to all club members. It is FREE for all members.

Several members have asked where are the notices, schedules and codes for Zoom meetings?

1. The groups.io calendar has a schedule of Zoom meetings and access codes.
2. The calendar can be accessed directly from the club web site <https://w5sc.org/events-calendar/> NOTE: it is the same groups.io calendar.

The saradioclub Group.io is being used to publicize SARC business meetings. It can be used for other things like promotion of VEC testing and classes. Members of the saradioclub Group.io can and have asked each other technical questions or sought assistance.

The saradioclub Group.io is a closed group. To become a member, go to saradioclub.groups.io. (You may need to have a Groups.io account.) You will then need to select *Apply for membership in this group*. This generates a message. SARC members can expect approval to join the saradioclub Group.io in probably less than 24 hours.



Reminder: there are two active Twitter accounts for the San Antonio Radio Club. They are @SARadioClub and @ARadioFiesta.

The @SARadioClub is being used to publicize SARC meetings. It can be used for other things like promotion of VEC testing and classes.

When work again commences the @ARadioFiesta will be used.

SARC members are encouraged to follow both Twitter accounts.

SARC Facebook



There is a San Antonio Radio Club – SARC (@saradioclub) Facebook Page.

The newsletter editor is making posts about SARC meetings and other activities. Any Officer, Committee Chairperson, or member who believes that they have information that should be posted to this page should contact the newsletter editor using the contact information for the newsletter editor on page 2 of this newsletter.

SARC members are encouraged to follow this Facebook Pa



There is a San Antonio Radio Club Slack team – w5sc.slack.com.

Slack teams are meant to foster communication between team members. Paul Guido, N5IUT, has established the w5sc.slack.com team for SARC. He has also established some channels. Think of the channels as topical areas.

To join send an email to Paul Guido, N5IUT, at radioteacher@gmail.com. In actuality, any team member already a part of the w5sc.slack.com can invite you, but Paul is known to be on it.

JOTA

Jamboree-on-the-Air, or JOTA, is the largest Scouting event in the world. It is held annually on the third full weekend in October.

JOTA uses amateur radio to link Scouts and hams around the world, around the nation, and in your own community. JOTA 2023 was held at McGimsey Scout Park Cub Pavilion 10810 Wedgewood Dr, Castle Hills, TX 78213.

. Anyone wanting to operate a station next year need to do the BSA Youth protection Training (YPT) and complete BSA Health forms.

<https://www.scouting.org/training/youth-protection/>

Amateur Radio License Classes

For more information, contact:
David Finell, N7LRY
Instructor

SARC has a website:

w5sc.org

Webmaster: Bill Craft KD2HIQ
Billc851@gmail.com
210-233-8863

SARC Meeting Dates for 2024

January 11, 2024

February 8, 2024

March 14, 2024

April 11, 2024

May 8, 2024

June 13, 2024

July 11, 2024

August 8, 2024

September 12, 2024

October 10, 2024

November 14, 2024

December – No meeting

Meetings are normally held at Blanco BBQ, 13259 Blanco Rd, San Antonio, TX 78216 at 7:00 p. m. Room is available at 6:00 p. m. for supper

Radio Fiesta 2024

Radio Fiesta 2024 will be at Schertz Civic Center on July 19/20. Hours are 1-8PM Friday, 8AM to 2 PM Saturday with 0700 setup for vendors and tailgaters. Tickets are \$13 for 2 days pre-event, \$15 at the door. Children, scouts, Military and first responders in uniform free. Students with ID, \$10. Tables are \$25. The 2-day event features seminars and license testing on Saturday., See details at: <https://w5sc.org/radio-fiesta-2024-information>

License Testing Dates for 2024

SARC does all of its licensing testing as a part of ARRL Volunteer Examiner Coordinator (VEC) organization so all of the Volunteer Examiners in SARC are duly authorized Volunteer Examiners of ARRL's VEC.

Register at HamTest@w5sc.org

Other info at W5SC.org click "Getting Started" then "Testing."

Field Day 2024

Field Day exercise, June 27 – 28 at the City of Shavano Park city hall for the twenty first year. *Where SARC proves they are an eating group with a radio problem.* Start thinking about Field Day 2024!.

Emergency Communications

If you are interested in emergency communications, contact:
JC Smith N5RXS